Attachment 3

Demonstration of Progress in Reducing Emissions for Attainment

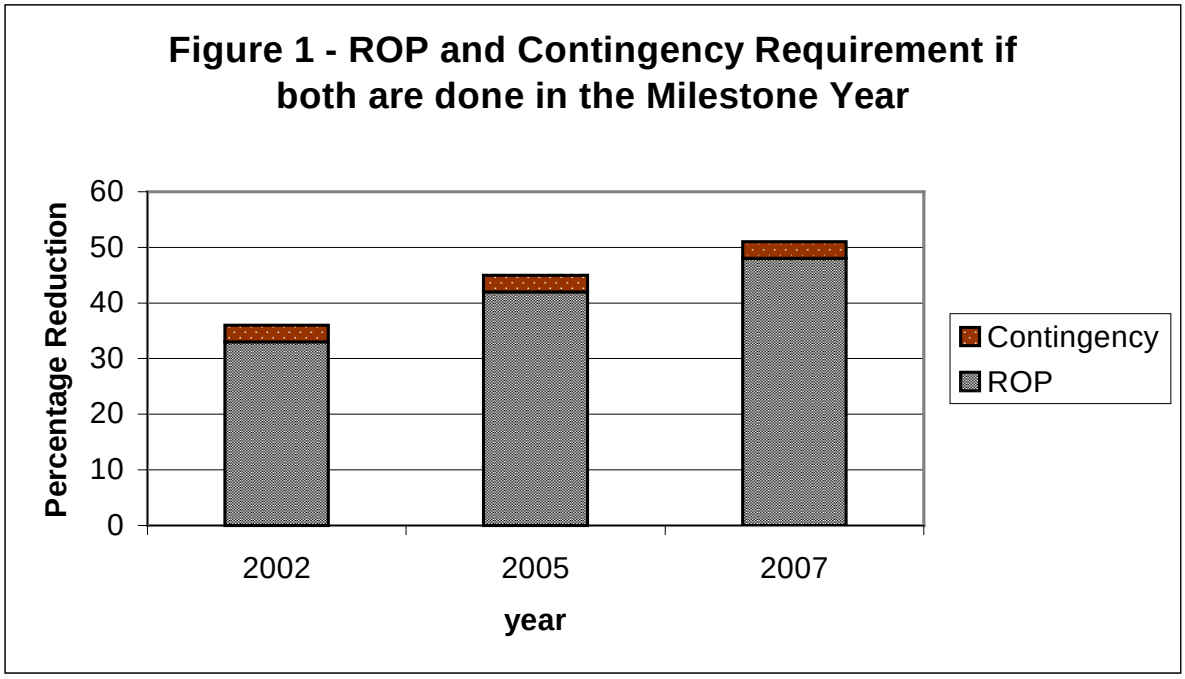
Areas designated as nonattainment for the 1-hour ozone standard are required to reduce VOC emissions 3% per year from "adjusted" 1990 levels until the areas attain the ozone standard and get reclassified. For severe ozone areas, Rate of Progress (ROP) plans are required to meet milestone years in 1996 (15%), 1999 (24%), 2002 (33%), 2005 (42%) and 2007 (48%). For each milestone plan, an additional 3% reduction must be identified as a contingency measure. The first ROP SIP revision was submitted in late 1993. The 1999 ROP SIP revision was submitted in 1997. The SIP revision for the remaining ROP milestones is due as part of the attainment demonstration.

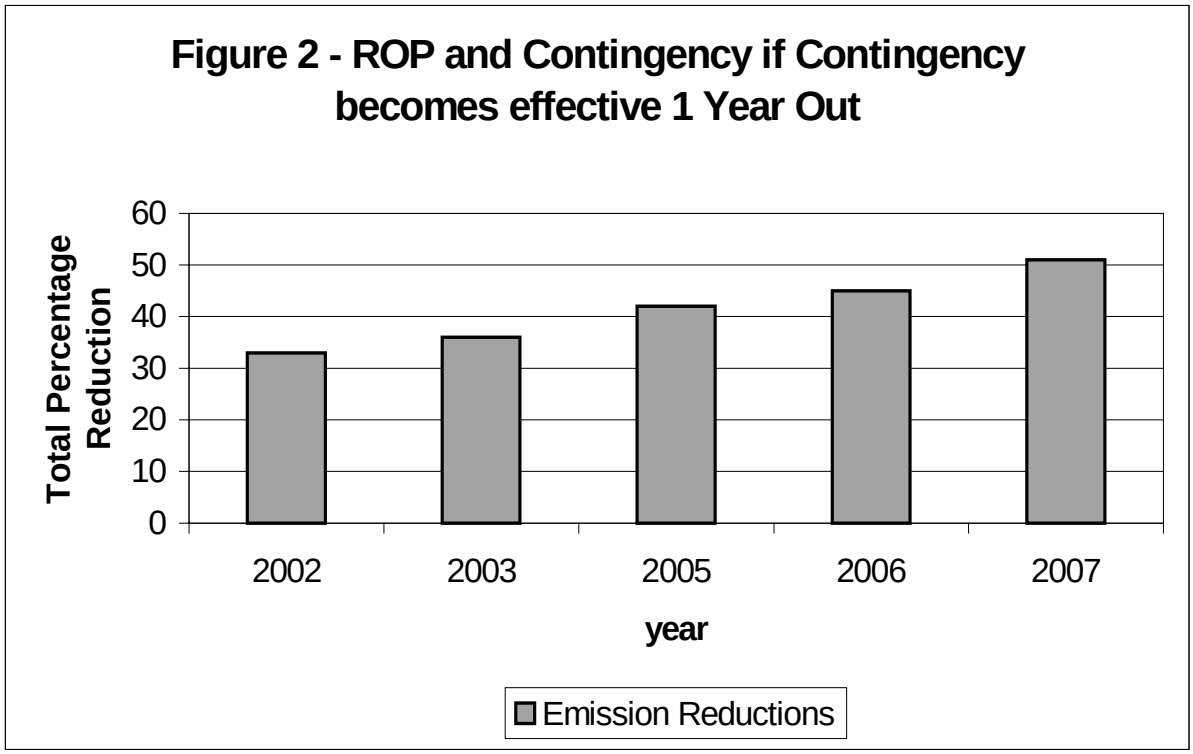
For areas where NOx control is necessary or appropriate as a strategy to reduce ozone concentrations, NOx reductions may be substituted for VOC reductions. EPA guidance allows NOx reductions as a substitute for VOC reductions for ROP milestones beginning in 1999.

Wisconsin's ROP SIP revisions for 1996 and 1999 relied on VOC emission reductions. Reductions in VOC emissions were believed to be the most appropriate means to improve ozone air quality. For the 1996 ROP Plan ("15% Plan") for SE Wisconsin, specified CAA control measures provided most of the 15% VOC reduction. Federal programs to reduce VOC emissions included reformulated gasoline, clean fuel fleets, and revised motor vehicle emission standards. Wisconsin program elements included rules defining VOC RACT for major sources, enhancement to the vehicle I/M program, Stage 2 gasoline fueling vapor recovery, solvent limits for various coatings applications and a handful of "voluntary" industrial solvent regulation enhancements. In 1997 the Department projected that the VOC emission control measures in the 1996 ROP plan, along with additional emission reductions from adopted federal programs, would be sufficient to reach the 1999 ROP requirement.

To fulfill the ongoing contingency requirement for the 2002-2007 ROP plans, the final rule has deferred the additional 3% emission reduction target contained in the draft ROP plan by one year. The ROP emission reduction goal for 2002 is 33%. In 2003 the ROP plus contingency emission reduction goal is 36%. The ROP emission reduction goal for 2005 is 42%. In 2006 the ROP plus contingency emission reduction goal is 45%. From 2007 on, emission reductions will achieve at least a 51% reduction. The 51% emission reduction will satisfy the 2007 48% ROP requirement plus the 3% contingency requirement.

Figures 1 and **2** compare the emission reduction goals of the draft and final rules. The final rule will achieve the required ROP emission reductions in annual steps rather than in discreet three year steps. The steady reductions result from core ROP elements becoming effective for the 2002 milestone and the continuing emissions decline from then on based on annual fleet turnover from the national NLEV and Tier 2 motor vehicle rules combined with a steady drop in the target NOx emission rate for the large electric utility boilers between 2002 and 2007.

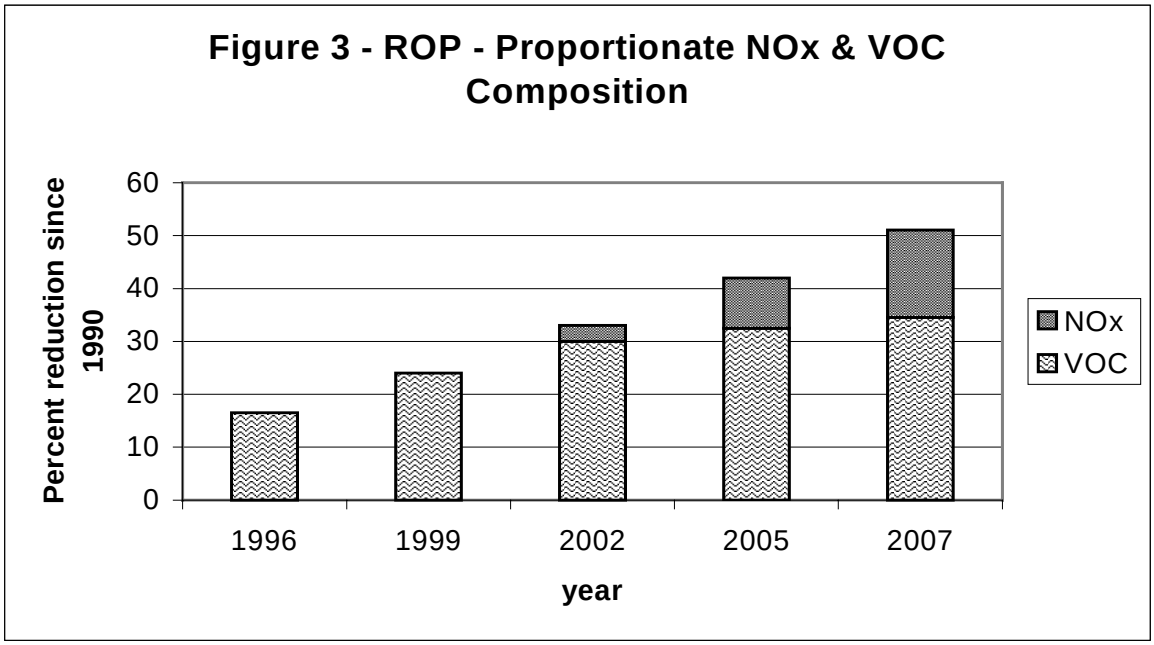




VOC emission reductions are expected to continue, but these will not be sufficient to meet the 2002-2007 ROP requirements. As a consequence, NOx emission reductions will be needed to cover some ROP and contingency requirements. The EPA has developed guidance on NOx emission reduction substitution for VOC reductions as part of ROP plans. This guidance

requires a technical demonstration to support the claim that NOx emission reductions are effective. NOx emission reductions may be substituted for VOC emission reductions so long as the VOC percentage reduction from the 1990 VOC adjusted emissions baseline plus the NOx percentage reduction from the 1990 NOx adjusted emissions baseline, when added together, are greater than or equal to the required ROP percentage reduction.

The proportion of VOC reductions to NOx reductions to achieve ROP is shown in **Figure 3**.



The four Lake Michigan states previously received a waiver to the NOx RACT controls otherwise required for the Severe Ozone counties in Wisconsin. The waiver was based on modeling performed through 1994. Subsequent regional ozone control modeling efforts, beginning with the OTAG modeling from 1995 through 1997, established the need for regional NOx reductions to address ozone attainment across the Eastern US, including in the Lake Michigan area. The most recent modeling verifies the benefit of both the NOx and VOC reduction strategies for the Lake Michigan region.

The current air quality modeling for the Lake Michigan region, conducted for this attainment demonstration, verifies the need for strong regional NOx control to further reduce ozone concentrations under most episodic conditions. Additional VOC emission reductions, focused more locally, will reduce ozone levels under some conditions, but added VOC control has become are more expensive than the proportionate regional NOx emission reductions.

Summary of the Post-2000 NOx-based Progress Plans

Tables 3-1 through 3-6 illustrate the VOC and NOx emission reductions necessary to meet the 2002, 2005 and 2007 ROP milestones. They show estimates of the actual VOC and NOx reductions from the adjusted 1990 baselines achieved through continued implementation of the 1996 and 1999 plans.

For calculating ROP emission budgets and necessary reductions the area included in the ROP plan is the 8- county area of Manitowoc, Sheboygan, Ozaukee, Washington, Milwaukee, Waukesha, Racine, and Kenosha.

VOC emissions projected for 2002, 2005 and 2007 are higher than prior estimates because of new information on activity levels and the creditability of emission reduction measures. The highway mobile sources VOC budget is slightly smaller after adjustments for vehicle speeds were incorporated. Under the final plan, the additional emission reductions needed for the 2002-2007 ROP milestones (including the 3% contingency) are achieved by reducing NOx emissions.

Table 3-1 Ozone Season Daily ROP Budgets – 2002, 2005, 2007

% Reduction Relative to "1990 Adjusted Baseline"	2002 ("33%")		2005 ("42%")		2007 ("51%")	
	VOC 330 tpd	NOx 356 tpd	VOC 329 tpd	NOx 354 tpd	VOC 328 tpd	NOx 353 tpd
8 County Budget	230 tpd	346 tpd	221 tpd	321 tpd	214 tpd	295 tpd
Creditable Reduction	30.3%	2.7%	32.8%	9.2%	34.8%	16.2%

Table 3-2 1-Hr Ozone Attainment Demonstration – Mobile Sector Budgets

Counties with Ozone Attainment or Maintenance Conformity Budgets[1]	2002		2005		2007	
	VOC (TPD)	NOx (TPD)	VOC (TPD)	NOx (TPD)	VOC (TPD)	NOx (TPD)
Milwaukee, Racine, Kenosha, Waukesha, Washington, & Ozaukee	43.5	103.5	36.7	84.1	32.2	71.4
Sheboygan	4.5	9.4	3.7	7.4	3.3	6.4
Manitowoc	5.4	10.0	5.2	8.8	5.2	8.3
TOTAL	53.4	122.9	45.6	100.3	40.7	86.1

[1]*Assumes high VMT growth, 7.5% buffer, updated speed profiles, and EPA's latest Tier2/low sulfur gasoline projections.*

Table 3-3 Initial Milestone - 2002 - Total 33% Rate-of-Progress

2002 Planning Objective = **2.7% NOx and 30.3% VOC** Reduction
NOx Reduction Target = 43.4 Tons per Ozone Day for 8 Counties

Control Measures Evaluated for 2002 Progress:

Sector – Measure	Tons Impact 2002
Mobile - I/M Cutpoints on May 1, 2001	13.6
Performance Standards for Existing Facilities	4.6
Utility – System Emission Rate 0.33 Assumes both I/M Cutpoints and Perf. Standards, Net of Growth	25
Performance Standards for New Sources Reduction from Growth	.2

Table 3-4 Intermediate Milestone - 2005 - Total 42% Rate-of-Progress

2005 Planning Objective = **9.2% NOx and 32.8% VOC** Reduction
NOx Reduction Target = 47.9 Tons per Ozone Day for 8 Counties

Control Measures Evaluated for 2005 Progress:

Sector – Measure	Tons Impact 2005
Mobile - I/M Cutpoints on May 1, 2001	10.1
Performance Standards for Existing Facilities	4.6
Utility – System Emission Rate 0.29 Assumes both I/M Cutpoints and Perf. Standards	32
Performance Standards for New Sources	1.2

Table 3-5 Final Milestone - 2007 - Total 51% Rate-of-Progress

2005 Planning Objective = **16.2% NOx and 34.4% VOC** Reduction
NOx Reduction Target = 61.7 Tons per Ozone Day for 8 Counties

Control Measures Evaluated for 2007 Progress:

Sector – Measure	Tons Impact 2007
Mobile - I/M Cutpoints on May 1, 2001	6.8
Performance Standards for Existing Facilities	4.6
Utility – System Emission Rate 0.28 Assumes both I/M Cutpoints and Perf. Standards	48.6
Performance Standards for New Sources	1.7

Table 3-6 2002 and 2007 Emissions Forecasts and ROP Budgets

TONS PER DAY

8 Non-Attainment Counties
Uncontrolled 2002 Emissions Forecast, if no added NOx reductions

	Highway	Non-Road	Area	sml egu Industrial	LARGE EGU	TOTAL
6-Severe	116.2	44	32	13	105	310.2
Sheboygan	10.3	5	2.3	1	42	60.6
Manitowoc	10	4	1.7	3	0	18.7
TOTAL	136.5	53	36	17	147	389.5

2002 Emissions Budget to meet ROP

	Highway	Non-Road	Area	sml egu Industrial	LARGE EGU	TOTAL	
6-Severe	103.5	44	32	9	91.2	279.7	
Sheboygan	9.4	5	2.3	0.9	30.5	48.1	
Manitowoc	10	4	1.7	2.5	0	18.2	
TOTAL	122.9	53	36	12.4	121.7	346	
Allowable							346

8 Non-Attainment Counties
Uncontrolled 2007 Emissions Forecast in tons per day if no added NOx reductions

	Highway	Non-Road	Area	sml egu Industrial	LARGE EGU	TOTAL
6-Severe	77.8	41.5	30.2	16	114	279.5
Sheboygan	6.8	4.7	2.2	1.2	45	59.9
Manitowoc	8.3	3.8	1.6	3.6	0	17.3
TOTAL	92.9	50	34	20.8	159	356.7

2007 Emissions Budget in tons per day to meet ROP

	Highway	Non-Road	Area	sml egu Industrial	LARGE EGU	TOTAL	
6-Severe	71.4	41.5	30.2	10.2	82.8	236.1	
Sheboygan	6.4	4.7	2.2	1.2	27.6	42.1	
Manitowoc	8.3	3.8	1.6	3.1	0	16.8	
TOTAL	86.1	50	34	14.5	110.4	295.0	
Allowable							295